

## **MIMO TCM WITH CONSTELLATION ROTATION AND COORDINATE SWAPPING**

### **ABSTRACT OF THE DISCLOSURE**

At the transmitting end of a multi-input multi-output communication system having at least two transmit antennas and  $M_r$  receive antennas, each symbol of a symbol coset is first arranged so that distinct symbols have distinct real and imaginary components for some set of symbols. The real components of each pair of the arranged symbols form a complex number that is transmitted on the first one of the transmit antennas. The imaginary components of each pair of the arranged symbols form a second complex number that is transmitted on the second one of the transmit antennas. At the receiving end, a decoder receives vector  $\mathbf{r}$  of the received complex numbers and a channel matrix  $\mathbf{H}$ , and in response, computes a set of associated distance and label metrics for each of the transmit antennas. A Viterbi decoder receives the computed distance and label metrics and identifies the most likely transmitted coset.

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